UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,330	01/15/2004	Kurt J. Korkowski	I69.12-0614	6390

164 7590 07/17/2007

KINNEY & LANGE, P.A.
THE KINNEY & LANGE BUILDING
312 SOUTH THIRD STREET
MINNEAPOLIS, MN 55415-1002

EXAMINER	
KAYRISH, MATTHEW	
ART UNIT	**PAPER NUMBER**
2627	

MAIL DATE	DELIVERY MODE
07/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/758,330	KORKOWSKI ET AL.	
	Examiner	Art Unit	
	Matthew G. Kayrish	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/1/2007 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 11-13 and 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Bauck et al (US Patent Number 4189759).

Regarding claim 1, Bauck discloses:

An endcap for use on an actuator arm carrying a single head gimbal assembly, the endcap comprising:

A body (figure 2, item 20); and

A shielding feature (figure 2, item 24) extending from the body in a cantilevered configuration (figure 2, item 24 extends as items 122 & 124) for reducing windage excitation of the head gimbal assembly (columns 10 & 12, lines 18-24 & 28-39).

Regarding claim 2, Bauck discloses the features of base claim 1, as stated in the 102 rejection above, and further disclosing:

Wherein the endcap is connected to the actuator arm at the body (figure 2, item 20 connects to item 22 via items 112 & 114).

Regarding claim 3, Bauck discloses the features of base claim 2, as stated in the 102 rejection above, and further disclosing:

Wherein the shielding feature includes a balancing portion (figure 2, item 131) and a shielding portion (figure 2, item 120).

Regarding claim 4, Bauck discloses the features of base claim 3, as stated in the 102 rejection above, and further disclosing:

Wherein the shielding feature is not connected to the actuator arm (figure 2, item 120 is not in contact with the actuator arm).

Regarding claim 5, Bauck discloses the features of base claim 3, as stated in the 102 rejection above, and further disclosing:

Wherein the balancing portion is shaped so the endcap is symmetric with respect to the shielding portion and the balancing portion (figure 2, items 120 & 131 are symmetrically split by action line [130]).

Regarding claim 6, Bauck discloses the features of base claim 1, as stated in the 102 rejection above, and further disclosing:

Wherein the shielding feature is structured to divert airflow proximate to a portion of the head gimbal assembly that experiences windage excitation (figure 7, column 12, lines 27-39).

Regarding claim 7, Bauck discloses the features of base claim 6, as stated in the 102 rejection above, and further disclosing:

Wherein the shield is structured to divert airflow away from a windward side of the head gimbal assembly (column 10, lines 18-24).

Regarding claim 8, Bauck discloses the features of base claim 1, as stated in the 102 rejection above, and further disclosing:

Wherein the head gimbal assembly further comprises a load beam (figure 2, item 26), a gimbal (figure 2, item 76), a transducing head (figure 2, item 58), and a flexible interconnect circuit (column 3, lines 48-59), and wherein the shielding feature is structured to divert an airflow proximate to a critical portion of the flexible interconnect circuit (figure 7).

Regarding claim 11, Bauck discloses:

A head actuation system comprising:

An actuator arm (figure 2, items 52 & 54);

A head gimbal assembly (figure 2, items 26, 62 & 76) for carrying a transducing head (figure 2, item 58), the head gimbal assembly connected to a first side of the actuator arm (figure 3, via items 102, 104, 106 & 108); and

A shield (figure 2, item 24) having a first portion attached to the actuator arm (figure 2, items 112 & 114) and a second cantilevered portion (figure 2, items 120 on right and left) for reducing airflow excitation of the head gimbal assembly (columns 10, 11 & 12, lines 18-24, 10-18 & 31-34), wherein the shield is attached to a second side of the actuator arm that is opposite the first side of the actuator arm (figure 3, item 112 is at opposite end from item 106 & 108).

Regarding claim 12, Bauck discloses the features of base claim 11, as stated in the 102 rejection above, and further disclosing:

Wherein the head gimbal assembly comprises:

A baseplate (figure 2, item 22) functioning as the shield (figure 2, item 22 supports shield), the baseplate having a body portion attached to the actuator arm (figure 2) and a shielding portion (figure 2, item 24) for reducing airflow excitation of the head gimbal assembly (columns 11 & 12, lines 10-18 & 31-34);

A load beam (figure 2, item 26), wherein the baseplate is attached to a first end of the load beam (figure 2, item 22 supports item 62);

A flexible interconnect circuit adjacent to the load beam (column 3, lines 48-59) and electrically connected to the transducing head (column 3, lines 48-59);

A gimbal attached to a second end of the load beam (figure 2, item 76); and

A slider supported by the gimbal (figure 2, item 76 supports 58), the slider disposed to support the transducing head (figure 2, item 58 supports item 84).

Regarding claim 13, Bauck discloses the features of base claim 11, as stated in the 102 rejection above, and further disclosing:

Wherein the shield comprises an end cap (figure 2, items 112 & 114 are the endcaps of the shield) having a body that comprises the first portion of the shield (figure 2, item 24 on right) and a symmetrical protrusion from the body that comprises a second portion of the shield (figure 2, item 24 on left).

Regarding claim 15, Bauck discloses the features of base claim 11, as stated in the 102 rejection above, and further disclosing:

Wherein the shield comprises an endcap having a body (figure 2, items 112 & 114) and a plurality of protrusions from the body (figure 2, items 24 on right and on left).

Regarding claim 16, Bauck discloses the features of base claim 15, as stated in the 102 rejection above, and further disclosing:

Wherein the endcap is symmetrical with respect to an axis extending along a center length of the load beam (figure 2, items 112 & 114 are symmetrical with item 130).

Regarding claim 17, Bauck discloses the features of base claim 16, as stated in the 102 rejection above, and further disclosing:

Wherein the protrusions form substantially a "C" shape (figure 3, the protrusions [24] meet at the end of item 26 to form a “C”).

Regarding claim 18, Bauck discloses the features of base claim 17, as stated in the 102 rejection above, and further disclosing:

Wherein each protrusion has a first portion (figure 2, items 112 & 114) and a distal portion (figure 2, item 110), the first portion defines a plane, and the distal portion is non-planar with the first portion (figure 2, items 112 & 114 are nonplanar with item 110).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9, 10, 14, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauck et al, in view of Nagahiro et al (US PG-Pub 2003/0218833).

Regarding claims 9 and 10, Bauck discloses the features of base claim 1, as stated in the 102 rejection above, but fails to specifically disclose:

Wherein the endcap is disposed in relation to an X, Y and Z coordinate system, wherein an airflow in a substantially Z/Y direction causes excitation of the head gimbal assembly, the shielding feature having a shape disposed in an X-Y/X-Z plane for controlling the airflow, wherein the substantially X-Y/Y-Z plane is defined substantially parallel to the actuator arm/an axis of rotation of the actuator arm.

Nagahiro discloses:

Wherein the endcap is disposed in relation to an X, Y and Z coordinate system, wherein an airflow in a substantially Z/Y (out-plane direction/in-plane direction) direction causes excitation of the head gimbal assembly (paragraph 49 & 69), the shielding feature having a shape disposed in an X-Y/X-Z plane (shielding feature device has a 3 dimensional shape) for controlling the airflow (figure 2, item 12), wherein the substantially X-Y/Y-Z plane is defined substantially parallel to the actuator arm/an axis of rotation of the actuator arm (paragraph 49).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the shielding system of Bauck with a damping system, as taught by Nagahiro, because this will provide for multi-dimensional damping which will provide a more stable slider, as noted in paragraphs 48 & 49.

Regarding claim 14, Bauck discloses the features of base claim 13, as stated in the 102 rejection above, but fails to specifically disclose:

Wherein the protrusion is T-shaped.

Nagahiro discloses:

Wherein the protrusion is T-shaped (figure 2, item 12 is T-shaped).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a T-shaped shield member on the load beam of Bauck, as taught by Nagahiro, because this will bridge the load beam, providing it with rigidity to maintain its length, as stated in paragraphs 36 and 37.

Regarding claim 19, Bauck discloses the features of claim 19 that are in common with those previously disclosed in claims 11, 12 and 13, as stated in the 102 rejections above, and further disclosing:

A rotatable magnetic disc (figure 7, items 140).

Bauck fails to specifically disclose:

A rotatable actuator arm.

Nagahiro discloses:

A rotatable actuator arm (paragraph 35);

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the arm of Bauck rotatable, as taught by Nagahiro, because this is very well known in actuator arms.

Regarding claim 20, Bauck and Nagahiro disclose the features of base claim 19, as stated in the 103 rejection above, Bauck further disclosing:

Wherein the symmetrically balanced shape feature is disposed proximate to an excitable portion of the head gimbal assembly (figure 2, items 24 meet in an area near the HGA at item 110) to control excitation of the head gimbal assembly caused by airflow generated by rotating the magnetic disc (columns 10, 11 & 12, lines 18-24, 10-18 & 31-34).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew G. Kayrish whose telephone number is 571-272-4220. The examiner can normally be reached on 8am - 5pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew G. Kayrish 7/10/2007

MGK

7/10/2007

ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER